System Test Case Descriptions - Release 2.1

TEST CASE ID:	0401
TEST CASE NAME:	Process basic R/T cmds

PURPOSE:	Verify the user-entered request (R/T command) processes with existing PRS features. This including the basic capability to build discrete and data commands (/CMD) with 1-step or 2-step transmission mode (/MODE), BDSP enabled, and /SEND,/CLEAR directives. Verify the proper response is returned to the user.
DESCRIPTION:	Login to HST system, activate TCL GUI window, enter command configuration by using /MODE directive, build singular RTCs (Real-Time Commands) by using /CMD directive. Monitor the command placed to command buffer by reviewing a special FEP/CMD file. Use /SEND directive to move command from the buffer to FEP. Observe the event messages generated by CMD. Print the system event log with display enabled and compare it with the expected results taken from PRD and command data spec. file.
LVL-1 THREADS:	4.1.1 4.1.2 4.1.5
LVL-2 THREADS:	
TEST_INPUTS:	GUI user entered directives (/DTCCNTRL:/MODE,TRAN=1 or 2: /SEND) All directives are valid. XRunner script main0401 and its calling script files.
PREREQUISITES:	Available CCS, Test Simulator/Data, Test Automation Software (XRunner), GPS time source, loaded PRD.
EXPECTED RESULTS:	CMD accepts and processes all user-entered requests,generates valid commands, sends them to FEP.
EVAL. CRITERIA:	Verify the system event log which includes all user entries. Verify the command flags correctly indicate the current applicable command modes and settings, such as RATE,TRAN,UVER,CDHI, RTRN,BDSP,<REDUND-DEV>,EVER,TDRS,TCHK.(The system should use default settings if not specified by the user.) Verify the commands are built with appropriate formats and sent to the FEP with correct CDI counter value (uplink verification). Verify the security controls for the user.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	0402
TEST CASE NAME:	Process critical R/T cmds

PURPOSE:	This test case is used to verify the authorized CCS user is able to process critical commands (both discrete and data commands) The critical commands are permitted by /ALLOW directive to enter the command buffer: otherwise, they can be rejected by /CANCEL directive.
DESCRIPTION:	Login to HST system, activate TCL GUI window, enter command configuration by using /MODE directive, build critical commands with /CMD directive. Use /ALLOW to placed the command into command buffer. Use /CANCEL directive to reject the command. Print the system event log and confirm the expected event messages are sent to SYM.
LVL-1 THREADS:	4.1.5 4.1.1 4.1.2
LVL-2 THREADS:	
TEST_INPUTS:	User entered directives (/HMA1N:/HMA2N). XRunner script main0402 and its calling script files.
PREREQUISITES:	Available CCS,Test Simulator/Data,Test Automation Software (XRunner), GPS time source, loaded PRD.
EXPECTED RESULTS:	CMD accepts the CCL directives and updates the ICS with no errors. CMD sends the corresponding event messages to SYM correctly.
EVAL. CRITERIA:	Verify the system event log which includes all user entries Verify the command flags correctly indicate the current applicable command modes and settings. Verify the critical commands respond to /ALLOW and /CANCEL correctly. Verify the commands are built with appropriate bit patterns and send to the FEP Verify the content of event messages during the command processing.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	0403
TEST CASE NAME:	Process new/derived R/T cmds

PURPOSE:	Verify the R/T command processing with special (such as SOI) or derived (bit manipulation functions) features. Verify the data parts must be complete (No default is taken for data command in R2.1). Verify the proper response and event messages are returned/displayed to the user.
DESCRIPTION:	Login to HST system, activate TCL GUI window, enter command configuration (/MODE), build RTC (/CMD) with SOI values, or bit manipulation functions. Review a special FEP/CMD file to check the content of command buffer. Observe the event messages generated by CMD. Print the system event log with BDSP enabled and compare it with the expected results taken from PRD and command data spec. file.
LVL-1 THREADS:	4.1.1 4.1.2 4.1.5
LVL-2 THREADS:	
TEST_INPUTS:	/CMD directives with SOIs or bit manipulation functions. XRunner script main0403 and its calling script files.
PREREQUISITES:	Available CCS, Test Simulator/Data, Test Automation Software (XRunner), GPS time source, loaded PRD
EXPECTED RESULTS:	CMD accepts, processes all user-entered requests, generates valid commands, and sends them to FEP.
EVAL. CRITERIA:	Verify the system event log which includes all user entries. Verify the command flags correctly indicate the current applicable command modes and settings. Verify the commands are built with appropriate bit patterns and sent to the FEP with correct CDI counter value. Verify no partial data parts and data mnemonics can be allowed in commands.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1705
TEST CASE NAME:	Context Dependent Decom

PURPOSE:	Verify the proper decommutation of ENG TLM parameters which are themselves dependent upon key parameter TLM values
DESCRIPTION:	XMT ENG TLM using discrete range values defined in the database for the key parameters. Observe the display pages. Run ANALYSIS queries to verify the value of the context dependent data
LVL-1 THREADS:	1.1.1 7.1.1 7.1.7 7.1.2 16.1.1 7.1.8 17.1.4 17.1.1
LVL-2 THREADS:	
TEST_INPUTS:	Test display page: 1705 PSS disk files:1705.an,1705.hn PSS scenario files::1705.scn Xrunner script files: main1705,login1705,rtpage1705,datreq1705,jobstat1705
PREREQUISITES:	Available CCS: PSS test data, Test Automation S/W, GPS time source
EXPECTED RESULTS:	Context dependent parameters are decommutated based on the value of the key parameters as defined in the database Backup material:Excel spreadsheet:1705an.res,1705hn.res
EVAL. CRITERIA:	Verify that the ANALYSIS report lists the correct value for the context dependent parameters based on the values of the key parameters. Compare with test data inputs.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1710
TEST CASE NAME:	EU Conversion Set Selection

PURPOSE:	Verify the capability to support TLM parameters with multiple conversion sets
DESCRIPTION:	XMT ENG data to the FEP.Observe values on display pages. Following data dropout, run ANALYSIS queries to verify the stored converted values.
LVL-1 THREADS:	7.1.2 7.1.1 17.1.1 17.1.4 7.1.7 7.1.8 16.1.1 1.1.1
LVL-2 THREADS:	
TEST_INPUTS:	Test display page:1710 PSS disk files:1710.an,1710.hn,1710,de PSS scenario files:1710.SCN Xrunner script files: main1710,login1710,rtpage1710,datreq1710,jobstat1710
PREREQUISITES:	Available CCS,PSS, Test Automation S/W, GPS time source
EXPECTED RESULTS:	Multiple conversion set selection based on TLM values defined in the database. Backup material:Excel spreadsheet:1710AN.RES,1710HN.RES,1710DE.RES
EVAL. CRITERIA:	Verify that the ANALYSIS report lists the EU value that corresponds to the curve selection defined in the database

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1711
TEST CASE NAME:	Limits Sensing

PURPOSE:	Verify the capability to limit check any decommutated TLM parameter using limit values defined in the database. Verify that the test display page indicates limit violations.
DESCRIPTION:	XMT ENG data to DMG. Observe the limit violation indicators on the display pages for the selected test mnemonics. Following data dropout, ANALYSIS queries will be run to verify limit violations
LVL-1 THREADS:	1.1.1 16.1.1 17.1.1 17.1.4 7.1.1 7.1.8 7.1.2 7.1.7
LVL-2 THREADS:	
TEST_INPUTS:	Test display page:1711A,1711B PSS disk files:1711.AN, 1711.HN PSS Scenario files:1711.SCN Xrunner script files: main1711,login1711,rtpage1711,datreq1711,jobstat1711
PREREQUISITES:	Available CCS:PSS, Test Automation S/W,GPS time source
EXPECTED RESULTS:	LIMITS sensing based on limit values defined in the database Backup material:Excel spreadsheet:1711AN.RES,1711HN,RES Note: In Release 1.0, limit sensing is limited to a single limit set definition and will not detect limit violations and limit set selection based on associated telemetry criteria (i.e., general equations, multi-eu curvers).
EVAL. CRITERIA:	Verify that the limit violations listed in the ANALYSIS output and on the display pages correspond to the values defined in the database. Compare with test data inputs

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1718
TEST CASE NAME:	General Equation Processing

PURPOSE:	Verify the capability to calculate General Equations. Limited functionality can be verified due to the content of this delivery.
DESCRIPTION:	XMT ENG data to DMG. Observe values on display pages. Following data dropout,run ANALYSIS queries to verify stored values. Equations requiring bit shifts, logical bit operations: and real and integer inputs will be verified.
LVL-1 THREADS:	1.1.1 7.1.1 7.1.2 7.1.7 7.1.8 16.1.1 17.1.1 17.1.4
LVL-2 THREADS:	
TEST_INPUTS:	Valid values for input variable mnemonics (TLM Parameters). PSS scenario file 1718an.sn. XRunner scripts main1718, netinit, toolrt, rtpage1718, toolreq, datreq1718, tooljob, jobstat1710, toolexit, netexit.
PREREQUISITES:	Available CCS: Simulator/Test data, Test Automation S/W,GPS time source
EXPECTED RESULTS:	Correct calculation of General Equations based on database definintion and input values. General Equation Mnemonic results are viewed and recorded on Excel spreadsheet 1718.res.
EVAL. CRITERIA:	Verify expected results from spreadsheet. Verify the ANALYSIS output. Compare output with test data inputs.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1719
TEST CASE NAME:	Derived Parameters

PURPOSE:	Verify the capability to calculate Derived Parameters. Limited functionality can be verified due to the content of this delivery
DESCRIPTION:	XMT ENG data to DMG. Observe values on display pages. Following data dropout, run ANALYSIS queries to verify stored values. Verify those DER PARs that do not require a Manuever Verification Data file.
LVL-1 THREADS:	1.1.1 16.1.1 7.1.8 17.1.4 17.1.1 7.1.7 7.1.2 7.1.1
LVL-2 THREADS:	
TEST_INPUTS:	Valid values for input variable mnemonics (TLM Parameters)
PREREQUISITES:	Available CCS: Test simulator data, Test Automation Software, GPS time source
EXPECTED RESULTS:	Correct calculation of Derived Parameters based on database definition and input values
EVAL. CRITERIA:	Verify the ANALYSIS output. Compare output with test data inputs

System Test Case Descriptions - Release 2.1

TEST CASE ID:	1725
TEST CASE NAME:	DMG-to-FEP PRD Load

PURPOSE:	To verify that PRD loads from the DMG to FEP.
DESCRIPTION:	During this test, the PRD will be loaded from DMG to the FEP.
LVL-1 THREADS:	
LVL-2 THREADS:	
TEST_INPUTS:	DMG PRD versions v25 and v50A. PSS scenario file: 1702all.scn.
PREREQUISITES:	Test Case 1723, available CCS, FEP, and PSS. PRD version 50.A loaded on the core data server. Xrunner script. CCS and PSS online and in nominal state. Tester logged into FEP workstation. Xrunner ready to animate main1725 script. PSS ready to output TLM associated with test case 1702all.scn.
EXPECTED RESULTS:	FEP sucessfully loads and compiles both PRD versions.
EVAL. CRITERIA:	FEP loads and compiles the PRD without error. FEP accepts and decoms all telemetry formats.

TEST CASE ID:	2101
TEST CASE NAME:	Process basic CCL procedures

PURPOSE:	Verify the capability to execute CCL procedures including parameter passing, local and global variables assignment (SET), conditional execution statement (IF,ELSE,ENDIF), and limited procedure control directives (WAIT,STEP,KILLPROC).
DESCRIPTION:	Login to HST system, activate TCL GUI window, execute the selected CCL procedures, monitor the commands invoked by procedures are placed in command buffer and transmitted to FEP automatically. Terminate one procedure by using KILLPROC directive. Assign local and global variables in one procedure by using SET directive. Observe the event messages generated by CMD. This test also confirm that obsolete PSTOL directives are not supported by CMD. Print the system event log and compare it with the expected results taken from PRD and command data spec. file.
LVL-1 THREADS:	21.1.5
LVL-2 THREADS:	
TEST_INPUTS:	Valid existing CCL procedures (COMPBMEM,COMPBSCI,PGMFRMT,TRFASTSD,TRINIT,TCXO, NOOP,MRXLGA,COMENGQ,RESTSTBF,ENGREP,OSLEW59, GGSAANGL) and one procedure contains obsolete PSTOL directives. XRunner script main2101 and its calling script files.
PREREQUISITES:	Available CCS,Test Simulator/Data,Test Automation Software (XRunner), GPS time source, telemetry DBYDIAM from PSS, transimission mode is set to 1,loaded PRD.
EXPECTED RESULTS:	CMD processes the valid CCL procedures, determines the detailed structure of the specified format, queues formatted command blocks into the buffer, logs command formatting results, and send the commands to FEP for uplink. The obsolete PSTOL directives are rejected by CMD.
EVAL. CRITERIA:	Verify CMD retrieves CCL procedures correctly, generates the proper formatted command blocks based on the input information, sends them to FEP with pre-set mode, increment CDI counter correctly, and logs the events unto the system event log accordingly.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2102
TEST CASE NAME:	Special PROC exec-SAC algorithm

PURPOSE:	This test case is used to verify the CMD is capable of executing the SAC algorithms correctly.
DESCRIPTION:	Login to HST system, activate TCL GUI window, execute selected CCL procedures, monitor the commands with different SAC values are invoked by procedures and placed in command buffer. They are then transmitted to FEP. Observe the event messages generated by CMD. Print the system event log and compare it with the expected results taken from PRD, command data spec. file, and SAC document.
LVL-1 THREADS:	21.1.5
LVL-2 THREADS:	
TEST_INPUTS:	Valid CCL procedures that contains commands with SAC input values. (The following SACs will be included: I1,I2,IE,IH,IM,T1,T2, T3,T4,TA,AA,and PV) XRunner script main2102 and its calling script files.
PREREQUISITES:	Available CCS,Test Simulator/Data,Test Automation Software (XRunner), GPS time source, loaded PRD.
EXPECTED RESULTS:	Verify the SAC features are handled correctly and the event messages reflect correct processes.
EVAL. CRITERIA:	Verify the output formats and values for the specific data fileds. Verify all the expected events are logged.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2103
TEST CASE NAME:	S/C devices manipulation

PURPOSE:	Verify the SWITCH directive, as well as the selection of redundant devices are performed correctly.
DESCRIPTION:	Login to HST system, activate TCL GUI window, execute the selected CCL procedures with SWITCH and MODE directives, monitor the status of devices (ON/OFF), the name of redundant devices (A/B side) through the command buffer display. Observe the event messages generated by CMD. Print the system event log and compare it with the expected results taken from PRD and command data spec. file.
LVL-1 THREADS:	21.1.5
LVL-2 THREADS:	
TEST_INPUTS:	Valid CCL procedure with SWITCH directive and redundant device selection statements (/MODE). XRunner script main2103 and its calling script files.
PREREQUISITES:	Available CCS,Test Simulator(PSS)/Data,Test Automation Software (XRunner),GPS time source, loaded PRD.
EXPECTED RESULTS:	CMD processes the CCL procedures, executes SWITCH and MODE directives, move command block into the buffer, logs command events, and sends the commands to FEP for uplink.
EVAL. CRITERIA:	Verify CMD executes CCL procedures correctly, generates the proper command blocks, sends them to FEP, increment CDI counter correctly, and logs the events unto system event log accordingly. Verify the commands are associated with specific ORU/ORIs. Verify the device's status and selection as expected through telemetry sent back from PSS.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2104
TEST CASE NAME:	Command retransmission

PURPOSE:	Verify the CMD is capable of allowing command retransmission to be performed both manually and automatically. CMD is also capable of cancelling any pending retransmissions.
DESCRIPTION:	Login to HST system, activate TCL GUI window, execute a selected CCL procedure, monitor the command is transmitted to FEP. Create a condition to fail FEP uplink operation and retransmit the command buffer by using /SEND directive. Repeat the above process but use /CLEAR directive to cancel the pending retransmission. Monitor the event messages generated by CMD. Print the system event log and compare it with the expected results.
LVL-1 THREADS:	21.1.8
LVL-2 THREADS:	
TEST_INPUTS:	Valid CCL procedures and CCL diretives (/SEND:/CLEAR:/MODE,RTRN=MANUAL or AUTO,TRAN=1 or 2). XRunner script main2104 and its calling script files.
PREREQUISITES:	Available CCS,Test Simulator/Data,Test Automation Software (XRunner),GPS time source.
EXPECTED RESULTS:	Verify the command block is retransmitted successfully. Verify the pending retransmission is cancelled if /CLEAR directive is entered. The event messages reflect the correct processes are executed.
EVAL. CRITERIA:	The CMD is capable to retransmit the command block, cancel the pending retransmissions, establish the interface with SYM to log events. The auto retransmission of a command buffer containing critical RTCs will not occur.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2105
TEST CASE NAME:	Process new/derived PROC

PURPOSE:	Verify the PROC execution with new/derived capabilities, such as for, loop, while, continue, switch, break statements, math. functions, and local variables having alphanumeric names.
DESCRIPTION:	Login to HST system, activate TCL GUI window, execute the selected CCL procedure with math. functions, monitor the commnads invoked by proper conditional execution statements (for,loop,while,switch,break,continue). Repeat the above steps and execute a CCL procedure by passing local variables by using alphanumeric names. Observe the event messages generated by CMD. Print the system event log and compare it with the expected results taken from PRD and command data spec. file.
LVL-1 THREADS:	21.1.5
LVL-2 THREADS:	
TEST_INPUTS:	Valid CCL procedures with new/derived capabilities. XRunner script main2105 and its calling script files.
PREREQUISITES:	Availabe CCS, Test simulator/Data, Test Automation Software (XRunner), GPS time source, loaded PRD.
EXPECTED RESULTS:	Verify CMD processes the CCL procedures correctly, builds the commands through the conditional execution statements, transmits the command block to FEP for uplink, and sends event messages to SYM.
EVAL. CRITERIA:	Verify all local variables being passed through procedure correctly. Verify all conditional execution statements being executed as expected. Verify all commands built through procedures are sent to FEP with no errors. Verify all expected event messages are generated by CMD.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2404
TEST CASE NAME:	System Time Event

PURPOSE:	Verify the capability of FEP to generate event messages when the system clock is out of tolerance limits with GPS. Verify DMG enters the event message into the Event database. Verify GUI displays the event message.
DESCRIPTION:	System Clock Time (SCT) is set to be out of tolerance limits (including boundary values) from GPS. FEP corrects the system clock. An event message is generated and routed to SYM. SYM processes the event messages and routes them to DMG for storage and to GUI for display. Observe the GUI Event Analyzer to verify that an event message is displayed for all limit violations.
LVL-1 THREADS:	24
LVL-2 THREADS:	
TEST_INPUTS:	The system clock time is modified to be out of tolerance limits with GPS.
PREREQUISITES:	DMG Event Lookup Table populated, XRunner, GPS
EXPECTED RESULTS:	The DMG Event database includes new records for all event messages generated by FEP for limit violations. The GUI displays the event message.
EVAL. CRITERIA:	The DMG Event database is verified to contain records for all event messages by comparison with the input file. The database is viewed to verify the following content: node source, subsystem source, process name source, process identification number, event type, timestamp, severity, mode, and message text. Event Analyzer GUI pages are updated to include the event message in the display log.

TEST CASE ID:	2405
TEST CASE NAME:	PGS Time Event

PURPOSE:	Verify the capability of FEP to generate event messages for unavailable GPS. Verify DMG enters the event message into the Event database. Verify GUI displays the event message.
DESCRIPTION:	GPS time is not available to FEP. The FEP generates an error event for unavailable GPS. An event message is generated and routed to SYM. SYM processes the event messages and routes them to DMG for storage and to GUI for display. Observe the GUI Event Analyzer to verify that an event message is displayed for all limit violations.
LVL-1 THREADS:	24
LVL-2 THREADS:	
TEST_INPUTS:	Unplug the GPS cable or use the Event Injector for unavailable GPS.
PREREQUISITES:	PSS, XRunner, DMG Event Lookup Table populated, GPS
EXPECTED RESULTS:	The DMG Event database includes new records for all event messages generated by FEP for limit violations. The GUI displays the event message.
EVAL. CRITERIA:	The DMG Event database is verified to contain records for all event messages by comparison with the input file. The database is viewed to verify the following content: node source, subsystem source, process name source, process identification number, event type, timestamp, severity, mode, and message text. Event Analyzer GUI pages are updated to include the event message in the display log.

System Test Case Descriptions - Release 2.1

TEST CASE ID:	2410
TEST CASE NAME:	Event Message

PURPOSE:	Verify the capability of SYM to generate event messages for any combination of parameters allowed by the event generator API and DMG lookup table (reference EVT input table). Verify DMG enters the event message into the DMG Event database. Verify GUI displays all event messages.
DESCRIPTION:	Inject event parameters (eventid, processNameInt, subSystem, opMode, foreground elements) into the SYM system. Event messages are generated using the DMG Event lookup table which contains event id, severity, type, and background elements. Generated events will be written to the DMG database, and displayed using the GUI Event Analyzer.
LVL-1 THREADS:	24
LVL-2 THREADS:	
TEST_INPUTS:	Inject events using the event injector test program (evtinj.exe) and input file (sys_test.csv). The input files will include variations on combinations of parameter inputs for each subsystem, each event, each event opmode, and event message type (reference EVT input table). Error testing will be done for out of boundary parameters and missing parameters.
PREREQUISITES:	XRunner on backbone server, DMG Event Lookup Table populated, test input file, SQL scripts to view DMG, SQL scripts to clean event database.
EXPECTED RESULTS:	The DMG Event database includes new records for all event messages generated. The GUI displays each event message.
EVAL. CRITERIA:	The DMG Event database is verified to contain records for all event messages by comparison with the input file. The database is viewed to verify the following content: event id, timestamp, node source, subsystem source, process identification number, and opmode. Event Analyzer GUI pages are updated to include display for all event messages in the input file including DMG lookup table information (event type, severity, and bacground message text).